HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

Attorney Docket No.: 200315149-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Henry Harlyn BAKER **Confirmation No.:** 6548

Serial No.: 10/690,378 **Examiner:** Sujoy K. KUNDU

Filed: October 20, 2003 **Group Art Unit:** 2863

Title: METHOD AND SYSTEM FOR CALIBRATION OF OPTICS FOR AN IMAGING DEVICE

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF - PATENTS

Sir:

This is an Appeal Brief in connection with the decisions of the Examiner in a Final Office Action mailed February 19, 2010, and in connection with the Notice of Appeal filed on May 19, 2010.

It is respectfully submitted that the present application has been at least twice rejected.

Each of the topics required in an Appeal Brief and a Table of Contents are presented herewith and labeled appropriately.

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(1) Real Party in Interest

The real party in interest is Hewlett-Packard Development Company, L.P.

(2) Related Appeals and Interferences

The Appellant is unaware of any appeals or interferences related to this case.

(3) Status of Claims

Claims 1-53 are pending, of which claims 18-31 and 49-53 were non-elected and withdrawn from consideration.

Claims 1-17 and 32-48 were elected for consideration.

Claims 1-14, 16, 17, 32-45, 47 and 48 stand rejected.

Claims 15 and 46 are objected to.

Claims 1-14, 16, 17, 32-45, 47 and 48 are appealed.

(4) Status of Amendments

No amendment was filed subsequent to the Final Office Action dated February 19, 2010.

A copy of the claims at issue on appeal is attached as the Claims Appendix.

(5) Summary of Claimed Subject Matter

Claims 1, 32 and 48 are the independent claims in this appeal. It should be understood that the citations below to the original disclosure as providing support for the claimed features are merely exemplary and do not limit the claim features to only those citations.

Claim 1. A method of calibrating an objective (Figs. 3 and 4; *Specification*, paragraph [0030]), comprising:

receiving the objective (lenslets 204 in Fig. 2A; 302 in Fig. 3) over a raster-organized surface (202 in Fig. 2; 306 in Fig. 3) having both image display and image acquisition modalities (402 in Fig. 4; *Specification*, paragraphs [0031] and [0036]);

positioning a calibration model (310 in Fig. 3; *Specification*, paragraph [0032]) before the objective (302) and the raster-organized surface (306) in preparation for acquiring images of the calibration model (404 in Fig. 4; *Specification*, paragraph [0037]);

receiving images of the calibration model through the objective and onto the raster-organized surface in the image acquisition modality (406 in Fig. 4; *Specification*, paragraphs [0034] and [0038]);

identifying optical characteristics of the objective through a comparison of the received images of the calibration model with each other (408 in Fig. 4; *Specification*, paragraph [0038]),

wherein the raster-organized surface comprises emitting elements and sensing elements to perform the image display and image acquisition modalities respectively (*Specification*, paragraph [0018]).

Claim 32. A system (Fig. 3) for calibrating an objective, comprising:

a raster-organized surface (306) having both image display and image acquisition modalities (*Specification*, paragraph [0031]);

an objective (302) mounted onto the raster-organized surface (*Specification*, paragraph [0031]);

a calibration model (310) positioned before the objective and the raster-organized surface in preparation for acquiring images of the calibration model, wherein images of the calibration model are received through the objective and onto the raster-organized surface in the image acquisition modality (*Specification*, paragraph [0032]); and

a processor (305) capable of executing instructions that identify optical characteristics of the objective through a comparison of the received images of the calibration model with each other (*Specification*, paragraphs [0032] and [0038]),

wherein the raster-organized surface comprises emitting elements and sensing elements to perform the image display and image acquisition modalities respectively (*Specification*, paragraph [0018]).

Claim 48. An apparatus (Fig. 3) for calibrating an objective (302 in Fig. 3), comprising:

means (306) for receiving the objective over a raster-organized surface having both image display and image acquisition modalities (*Specification*, paragraph [0031]);

means (310) for positioning a calibration model before the objective and the raster-organized surface in preparation for acquiring images of the calibration model (*Specification*, paragraph [0032]);

means (305) for receiving images of the calibration model through the objective and onto the raster-organized surface in the image acquisition modality (*Specification*, paragraph [0032]); and

means (305) for identifying optical characteristics of objective through a comparison of received images of the calibration model with each other (*Specification*, paragraphs [0032] and [0038]),

wherein the raster-organized surface comprises emitting elements and sensing elements to perform the image display and image acquisition modalities respectively (*Specification*, paragraph [0018]).

(6) Grounds of Rejection to be Reviewed on Appeal

Whether claims 1-14, 16, 17, 32-45, 47 and 48 were properly rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,307,377 to Pferd et al. (hereinafter "Pferd") in view of U.S. Patent No. 4,896,082 to Geiger (hereinafter "Geiger").

(7) Arguments

The rejection of claims 1-14, 16, 17, 32-45, 47 and 48 under 35 U.S.C. §103(a) as being unpatentable over Pferd in view of Geiger should be reversed.

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007):

> "Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." Quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966).

According to the Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in view of *KSR International Co. v. Teleflex Inc.*, Federal Register, Vol. 72, No. 195, 57526, 57529 (October 10, 2007), once the *Graham* factual inquiries are resolved, there must be a determination of whether the claimed invention would have been obvious to one of ordinary skill in the art based on any one of the following proper rationales:

> (A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (E) ''Obvious to try''—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; (G)

> Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007).

Furthermore, as set forth in *KSR International Co. v. Teleflex Inc.*, quoting from *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006), "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasonings with some rational underpinning to support the legal conclusion of obviousness."

Furthermore, as set forth in MPEP 2143.03, to ascertain the differences between the prior art and the claims at issue, "[a]ll claim limitations must be considered" because "all words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385.

- **<u>Claims 1-14, 16, 17, 32-45, 47 and 48:</u>**

Claims 1-14, 16, 17, 32-45, 47 and 48 were rejected under 35 U.S.C. §103(a) as being unpatentable over Pferd in view of Geiger. This rejection should be reversed for at least the following reasons.

  - <u>Independent Claims 1, 32, and 48:</u>

Independent claims 1, 32, and 48 recite "a raster-organized surface having <u>both image display and image acquisition modalities</u> ... wherein the raster-organized surface comprises <u>emitting elements and sensing elements</u> to perform the image display and image acquisition modalities respectively" (emphasis added).

Pferd in view of Geiger fails to teach the aforementioned claimed features for at least the following reasons.

In the rejection of claims 1, 32, and 48, the Examiner admits that Pferd fails to teach or suggest the claimed features "wherein a raster-organized surface comprises emitting elements and sensing elements to perform the image display and image acquisition modalities respectively" (See *Final Office Action*, bottom of page 2).

The Examiner then asserts that Geiger discloses in the Abstract and col. 4, line 63 to col. 5, line 4, the claimed features recited above. Specifically, the Examiner asserts that the index strips 22 and 32 in Fig. 3 of Geiger are the "emitting elements" recited in the claims, and the photosensitive elements 4 and 5 in Fig. 3 of Geiger are the "sensing elements" recited in the claims (See *Final Office Action*, page 3). However, those assertions are respectfully traversed. Geiger discloses in Fig. 3, the Abstract, and col. 4, line 47 to col. 5, line 37 a cathode ray tube (CRT) 110' and a feedback-loop circuit arrangement to correct the electron beam generated by the CRT 110', thereby correcting the raster distortion in the CRT 110'. The CRT 110' has a picture screen 20 and two index trips 22 and 32, which are formed by light emitting layers (*Geiger*, col. 4, lines56-59). The circuit arrangement includes two photosensitive elements 4 and 5, a signal shaping circuit 6', a comparator 8, control circuit 9', a counter 10, and a video amplifier 11. In operation, the index strips 22 and 32 receive the electron beam from the CRT 110' and emit light. The light emitted from the index strips 22 and 32 are detected by the photosensitive elements 4 and 5. The signal shaping circuit 6' receives signals from the photosensitive elements 4 and 5 and generates impulses that indicate the times at which the

electron beam from the CRT 110' passes through the index strip 22 and 32. The comparator 8 generates a difference between the output from the circuit 6' and reference impulses 7'a. The control circuit 9' receives the output of the comparator 8 and controls the counter 10 and video amplifier 11 to correct the electron beam of the CRT 110', thereby correcting the raster distortion in the CRT 110' (See *Geiger*, the Abstract and col. 4, line 47 to col. 5, line 37).

As such, in Geiger, the index strips 22 and 32 emit light because they are formed by light emitting layers. However, the index strips 22 and 32 do not perform image display like the "emitting elements" recited in claims 1, 32, and 48. In Geiger, the screen 20 displays the images for the CRT 110', but the index strips 22 and 32 on two sides of the screen 20 do not perform image display. Instead, the index strips 22 and 32 are used as means to pick up the electron beam from the CRT 110' and feed that electron beam to the circuit arrangement (photosensitive elements 4 and 5; circuit 6'; comparator 8; control circui t9', counter 10, and video amplifier 11) so that the circuit arrangement can correct the electron beam of the CRT 110'. As a result, the index strips 22 and 32 do not perform image display and, therefore, are not the same as or equivalent to the "emitting elements" <u>to perform the image display modality</u>, as recited in claims 1, 32, and 48.

Similarly, in Geiger, the photosensitive 4 and 5 sense the electron beam from the index strips 22 and 32. However, the electron beam from the index strips 22 and 32 does not include images. Rather, the electron beam from the index strips 22 and 32 merely indicates the intensity of the light that they receive from the CRT 110', wherein the intensity of the light does not include images. Thus, the photosensitive 4 and 5 do not perform an <u>image</u> <u>acquisition</u> modality.

Accordingly, the photosensitive 4 and 5 are not the same as or equivalent to the "sensing elements" that perform the "image acquisition modality" as recited in claims 1, 32, and 48.

Therefore, in contrast to the assertions by the Examiner, Geiger fails to teach or suggest "a raster organized surface having <u>both image display and image acquisition modalities</u> ... wherein the raster-organized surface comprises emitting elements and sensing elements <u>to perform the image display and image acquisition modalities respectively</u>," as recited in claims 1, 32, and 48.

Furthermore, claims 1, 32, and 48 recites that the raster organized surface comprises the emitting elements and the sensing elements. In Geiger, the Examiner asserts that the index strips 22 and 32 are the claimed "emitting elements" and the photosensitive elements 4 and 5 are the claimed "sensing elements." However, as shown in Fig. 3, the photosensitive elements 4 and 5 are placed outside the CRT 110' and at a distance from the index strips 22 and 32. Thus, the index strips 22 and 32 and the photosensitive elements 4 and 5 in Geiger are not on one surface. In other words, the index strips 22 and 32 and the photosensitive elements 4 and 5 cannot be interpreted as being comprised on a "raster-organized <u>surface</u>" as recited in the claims. Therefore, not only does Geiger fail to teach or suggest the "emitting elements and sensing elements to perform the image display and image acquisition modalities respectively" as discussed above, Geiger also fails to teach or suggest a "raster-organized surface" that comprises the emitting elements and sensing elements, as recited in claims 1, 32, and 48.

As such, Geiger fails to cure the deficiencies of Pferd. Thus, even assuming for the sake of argument that somehow one skilled in the art were motivated to modify Pferd using the

disclosure in Geiger, the modified Pferd would still fail to teach or suggest "wherein the raster-organized surface comprises emitting elements and sensing elements to perform the image display and image acquisition modalities respectively," as recited in claims 1, 32, and 48.

In addition, independent claim 1 recites,

> identifying optical characteristics of the objective through a comparison of the received images of the calibration model <u>with each other</u>.

Independent claim 32 recites,

> a processor capable of executing instructions that identify optical characteristics of the objective through a comparison of the received images of the calibration model with each other.

Independent claim 48 recites,

> means for identifying optical characteristics of objective through a comparison of received images of the calibration model with each other.

Thus, independent claims 1, 32, and 48 recite that the optical characteristics of the objective are identified by comparing the received images of the calibration model <u>with each other</u>. Support for that feature may be found in the specification, at least in paragraph [0038] and step 408 in Fig. 4. In the previous response, the Appellants argued that Pferd fails to teach the comparison of the received images of the calibration model <u>with each other</u>, as recited in the claims. However, the Examiner fails to respond to that argument in the Final Office Action. Thus, the Appellants repeat that argument as follows.

In the rejection of claims 1, 32, and 48, the Examiner asserts that Pferd discloses the comparison of the received images in col. 2, lines 62-68 (See *Final Office Action*, page 2). That

assertion is respectfully traversed. Pferd discloses in col. 2, lines 62-68 that the detection circuitry generates light values in the form of "gray levels." Thus, in Fig. 2, Pferd discloses a "thresholding" 11 that converts the gray level information into binary (black and white) signals by comparing the gray level information from the scanner with a "chosen threshold" (See col. 4, lines 15-20). As such, Pferd discloses a comparison of the scanned images with a threshold. However, Pferd does not compare the scanned images with other scanned images. Therefore, Pferd fails to teach or suggest a comparison of the received images **with each other**, as recited in claims 1, 32, and 48.

For at least the foregoing reasons, the Examiner has failed to establish that independent claims 1, 32, and 48 are *prima facie* obvious in view of the combined disclosures contained in Pferd in view of Geiger. It is therefore respectfully requested that the rejection of independent claims 1, 32, and 48 be reversed, and these claims be allowed.

- Dependent Claims 2-14, 16, 17, 33-45 and 47:

Claims 2-14, 16, 17, 33-45 and 47 are dependent from independent claims 1, 32 and 48. Thus, they are also believed to be allowable over the cited documents of record for at least the same reasons as set forth to independent claims 1, 32 and 48 above. It is therefore respectfully requested that the rejection of claims 2-14, 16, 17, 33-45 and 47 be reversed, and these dependent claims be allowed.

(8) Conclusion

For at least the reasons given above, the rejection of claims 1-14, 16, 17, 32-45, 47 and 48 described above should be reversed and these claims allowed.

Please grant any required extensions of time and charge any fees due in connection with this Appeal Brief to deposit account no. 08-2025.

Respectfully submitted,

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By /Ashok K. Mannava/

Ashok K. Mannava
Registration No. 45,301
(703) 652-3822

MANNAVA & KANG, P.C.
11240 Waples Mill Road
Suite 300
Fairfax, VA 22030
(703) 865-5150 (facsimile)

(9) Claim Appendix

1. (Previously Presented) A method of calibrating an objective, comprising:

receiving the objective over a raster-organized surface having both image display and image acquisition modalities;

positioning a calibration model before the objective and the raster-organized surface in preparation for acquiring images of the calibration model;

receiving images of the calibration model through the objective and onto the raster-organized surface in the image acquisition madality;

identifying optical characteristics of the objective through a comparison of the received images of the calibration model with each other,

wherein the raster-organized surface comprises emitting elements and sensing elements to perform the image display and image acquisition modalities respectively.

2. (Previously Presented) The method of claim 1 further comprising:

recording a calibration vector corresponding to the objective that compensates for the optical characteristics of the objective during both display and acquisition modalities.

3. (Original) The method of claim 2 wherein the calibration vector is stored in a storage area associated with the objective.

4. (Original) The method of claim 2 wherein the calibration vector corresponding to the objective is stored on a storage device selected from a set of storage devices including: a CD-ROM, a DVD, a magnetic-tape, a floppy disc and a flash memory device.

5. (Original) The method of claim 1 wherein the objective is comprised of one or more lenslets that refract light in two dimensions.

6. (Original) The method of claim 5 wherein the one or more lenslets are organized in a monolithic array configuration.

7. (Original) The method of claim 6 wherein the lenslets in the monolithic array are organized into arrays selected from a set of shapes including a square shape, a hexagonal shape and a random shape.

8. (Original) The method of claim 5 wherein the lenslets facilitate autostereoscopic display when the raster organized surface operates in the image display modality.

9. (Original) The method of claim 1 wherein the objective is comprised of one or more lenticules that refract light in a single dimension.

10. (Original) The method of claim 9 wherein the one or more lenticules are organized in a monolithic columnar array.

11. (Original) The method of claim 9 wherein the lenticules facilitate autostereoscopic display when the raster organized surface operates in the image display modality.

12. (Previously Presented) The method of claim 1 wherein the emitting elements and sensing elements are adjacent to each other.

13. (Original) The method of claim 12 wherein the emitting elements are selected from a set including liquid crystal display (LCD), light emitting diode (LED), and other components, and the sensing elements include photoreceptors.

14. (Previously Presented) The method of claim 1 wherein the emitting elements and sensing elements are comprised of dual-purpose elements configured to perform both image display and image acquisition modalities under a control signal.

15. (Original) The method of claim 14 wherein the dual-purpose elements are configured from an organic light emitting device (OLEO) material, or other material, that emits energy to perform image display when the control provides a first control signal and senses energy to perform image acquisition when the control provides a second control signal.

16. (Previously Presented) The method of claim 1 wherein the calibration model is an object presenting one or more different perspectives depending on the position of the objective on the raster organized surface.

17. (Original) The method of claim 1 wherein receiving images of the calibration model, further comprises:

receiving one or more perspective views of the calibration model from one or more refractive elements of the objective.

32. (Previously Presented) A system for calibrating an objective, comprising:

a raster-organized surface having both image display and image acquisition modalities;

an objective mounted onto the raster-organized surface;

a calibration model positioned before the objective and the raster-organized surface in preparation for acquiring images of the calibration model, wherein images of the calibration model are received through the objective and onto the raster-organized surface in the image acquisition modality; and

a processor capable of executing instructions that identify optical characteristics of the objective through a comparison of the received images of the calibration model with each other,

wherein the raster-organized surface comprises emitting elements and sensing elements to perform the image display and image acquisition modalities respectively.

33. (Previously Presented) The system of claim 32 further comprising:

a storage area associated with the objective for recording a calibration vector corresponding to the objective that compensates for the optical characteristics of the objective during both display and acquisition modalities.

34. (Original) The system of claim 33 wherein the calibration vector is stored in a storage area associated with the objective.

35. (Original) The system of claim 33 wherein the calibration vector corresponding to the objective is stored on a storage device selected from a set of storage devices including: a CD-ROM, a DVD, a magnetic-tape, a floppy disc and a flash memory device.

36. (Original) The system of claim 32 wherein the objective is comprised of one or more lenslets that refract light in two dimensions.

37. (Original) The system of claim 36 wherein the one or more lenslets are organized in a monolithic array configuration.

38. (Original) The system of claim 37 wherein the lenslets in the monolithic array are organized into arrays selected from a set of shapes including a square shape, a hexagonal shape and a random shape.

39. (Original) The system of claim 36 wherein the lenslets facilitate autostereoscopic display when the raster organized surface operates in the image display modality.

40. (Original) The system of claim 32 wherein the objective is comprised of one or more lenticules that refract light in a single dimension.

41. (Original) The system of claim 40 wherein the one or more lenticules are organized in a monolithic columnar array.

42. (Original) The system of claim 41 wherein the lenticules facilitate autostereoscopic display when the raster organized surface operates in the image display modality.

43. (Previously Presented) The system of claim 42 wherein the emitting elements and sensing elements are adjacent to each other.

44. (Original) The system of claim 42 wherein the emitting elements are selected from a set including liquid crystal display (LCD), light emitting diode (LED), and other components, and the sensing elements include photoreceptors.

45. (Previously Presented) The system of claim 32 wherein the emitting elements and sensing elements are comprised of dual-purpose elements configured to perform both image display and image acquisition modalities under a control.

46. (Original) The system of claim 45 wherein the dual-purpose elements are configured from an organic light emitting device (OLED) material, or other material, that emits energy to perform image display when the control provides a first control signal and senses energy to perform image acquisition when the control provides a second control signal.

47. (Previously Presented) The system of claim 32 wherein the calibration model is an object presenting one or more different perspectives depending on the position of the objective on the raster organized surface.

48. (Previously Presented) An apparatus for calibrating an objective, comprising:

means for receiving the objective over a raster-organized surface having both image display and image acquisition modalities;

means for positioning a calibration model before the objective and the raster-organized surface in preparation for acquiring images of the calibration model;

means for receiving images of the calibration model through the objective and onto the raster-organized surface in the image acquisition modality; and

means for identifying optical characteristics of objective through a comparison of received images of the calibration model with each other,

wherein the raster-organized surface comprises emitting elements and sensing elements to perform the image display and image acquisition modalities respectively.

(10) Evidence Appendix

None.

(11) Related Proceedings Appendix

None.